



The Impact of Electronic Accounting Information Systems on the Security of Financial Information

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Received: 09-10-2025
Accepted: 14-11-2025
Published: 28-12-2025



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Abstract: *This study aimed to prove the security of financial information through the confidentiality and non-disclosure of information by individuals. To achieve this objective, the research addressed the knowledge bases and theoretical foundations of electronic accounting information systems (EAIS) and their relationship to accounting books and documents. It also discussed financial information security (FIS), its importance, elements, and components, and clarified the competence and effectiveness of accounting information systems implemented in government departments. Furthermore, it determined the importance of financial information confidentiality in government units, given that FIS constitutes a fundamental pillar of the administrative system within economic units. This is due to its role in protecting user information, whether for government units or stakeholders involved in decision-making, through reliance on accounting information systems. The research reached several conclusions, most notably the global interest in EAIS due to their significant advantages in the field of FIS. Additionally, the readiness of the system used in a company helps meet the requirements for protecting FIS.*

Keywords: *Electronic Accounting Information Systems (EAIS), Financial Information Security.*

Introduction

In light of the changes accompanying the work environment, the need for accounting information systems has increased significantly. This is due to the essential need for a comprehensive, accurate, and reliable accounting information system that delivers information to users in a timely manner. Many internal and external parties are very interested in EAIS and gain many of their needs such as daily information about transactions, mitigation of risks through means and procedures to protect the financial information, and overcoming the risk of increased confidence in accounting information systems through deterrent laws. The research concluded with a list of recommendations, and the most significant is that company management should be more aware of EAIS to ensure the security and integrity of financial information.

Part One: Research Methodology

1-Research Problem

The research problem was the impact of EAIS on the security of financial information.

2-Research Objective

This research aims to achieve FIS by ensuring the confidentiality of information and preventing its disclosure by individuals. This can be achieved by utilizing EAIS through modern software and approved methods to reach a high degree of FIS by delivering information to users with a high degree of trust, thus leading to the desired objective.

3-The importance of the research

The importance of the research lies in drawing the attention of government units to important role of AISin ensuring the confidentiality and security of financial information. It also requires providing a database that cannot be breached by unauthorized persons, as this violates the confidentiality and integrity of financial data.

3-Research Hypotheses

H1: There is a statistically significant direct correlation between EAIS and FIS.

H2: There is a statistically significant direct effect of EAIS on FIS.

Part Two: Theoretical Framework

First – Accounting Information Systems

1-The Concept of Accounting Information Systems

There are several definitions of accounting information systems. One is that they are a component of the administrative organization that collects and compiles financial data from bases both inside and outdoor the economic component. This data is then processed and transformed into valuable financial information for operators both within and outdoor the economic unit. An accounting information system is considered a fundamental component of a management information system. The difference between them lies in the fact that the former deals with accounting data and information, while the latter deals with all data and information that affects the organization's activity (Al-Fakhri & Hajar, 2025: 238-239). Like other systems, the accounting system, with all its components, has characteristics that distinguish it from other systems. These characteristics are related to the function of accounting. The AIS deals with economic data resulting from internal operations or external events, expressed in financial terms or to be translated into financial terms. On the output side, the accounting system produces reports, statements, and some information expressed in financial terms, representing recording processes, control information, and decision-making information (Al-Jazrawi, 2010: 66). 2. Components of EAIS:

Accounting software is used to implement the electronic accounting system. Electronic accounting is based on the concept of a database, which is the main program that allows access to the data contained in the database. The

following are the components of electronic accounting software: (Agnes: 2011, p. 5).

- a. **Groundwork of Accounting Documents:** Electronic devices assist in making accounting leaflets such as cash registers and other documents. Electronic accounting systems have user identification templates that provide speed and accuracy in entering transactions. Consequently, all documents and reports can be generated automatically.
- b. **Transaction Recording:** Daily business transactions are recorded using computer software. Each account is assigned a unique code. Accounts are grouped in the first stage. This process simplifies transaction recording and ensures that electronic systems reduce human error in transaction recording, unlike traditional systems.
- c. **Preparing the trial balance and financial statements:** After recording transactions, the data is automatically transferred to the ledger accounts by computer software. The computer then prepares the trial balance to verify the accuracy of the records. The computer can also be programmed to generate a comprehensive income statement and a balance sheet.

3. Types of accounting information systems:

The types of accounting information systems vary depending on the size and nature of the economic unit's operations and the management approach to selecting the system. They can be divided into manual accounting information systems, electronic or modern information systems, integrated information systems, and comprehensive information systems, as follows (Abdul-Hadi, 2019: 22-23)

- a. **Manual Information Systems:** In this system, financial transactions and reports are recorded manually without using technological tools for data collection, recording, and processing. Accountants and related staff participate in all accounting operations, which constitute a significant workload.
- b. **Modern Electronic Information Systems:** These systems rely on technological tools (computers) for data collection, recording, and processing using electronic processors. This reduces the human effort required from the accountant and is the most widely used system in most economic units.
- c. **Integrated Information Systems:** This is a modern concept in information systems that allows for the construction of integrated systems to avoid duplication in data collection and processing. It is applied when there is more than one system within an economic unit, instead of creating separate information systems for management, budgeting, research and development, and human resources. This leads to increased efficiency and reduced costs.

- c. **Comprehensive Information Systems:** These are systems that encompass all influencing variables and are designed as a main system and subsystems. They implement a large number of systems simultaneously to avoid reusing information more than once in each system. These systems provide all the necessary requirements (technical, human, and administrative).

4-The Impact of Using EAIS on Accounting Procedures:

The use of electronic computers in the field of accounting organization has had a significant impact on the nature of accounting operations. Some of these impacts are as follows: (Abdul Maqsood, 2004: 71).

- a. The accountant's role is limited to collecting documents, preparing data, utilizing the expertise of data operators, and interpreting information.
- b. The role of the computer and its peripherals is limited to recording data from input sources, tabulating, classifying, compiling, and analyzing data, and centralizing document storage after data entry and recording in the journals and posting to the general ledger.

5-The impact of using EAIS on accounting books and records:

The manual system consists of a set of books, which in turn consists of journals and ledgers. These take the form of books and records in which entries are recorded and accounts are categorized. Anyone reviewing them can read the data and figures. However, with the use of computers, the books and records have taken the form of magnetic disks and discs, and the reader cannot directly view the recorded data as in the manual system. Furthermore, the use of electronic processing has an impact on financial reports and statements. The use of computers in data processing has affected the quality of financial reports and statements. We find that the use of computers has led to the use of speed and accuracy in preparing reports and lists, as it has become possible to process huge amounts of data in record time. On the other hand, the results have become displayed on screens, which makes it possible to check them and correct errors if there are any, quickly before printing the results, as well as making changes quickly and efficiently in the decision (Othman and Muhammad, 2019: 118).

Second - Financial Information Security

1-Definition of Financial Information Security

Information security protects sensitive data, such as electronic records and digitally stored information, from unauthorized access (<https://www.snhu.edu/about-us/newsroom/stem/what-is-information-security>). Information security is the protection of all resources employed in information processing because the organization, the organization personnel, the computers employed in the organization, and the information medium containing the organization data are all protected (Al-Hakim, 2010, p. 571). Information security is also defined as a study of policies and strategies that need to be understood to protect information (Khalil, 2013, p. 619).

2- The Importance of Financial Information Security:

Information security is a science or field that explores how to protect information, data, and their systems, and provides appropriate means and methods to achieve this goal. Information security is a branch of computer science, as computer science is closely related to this field. Among the areas related to information security are internet security and network security. Information security deals with protecting information from hacking, unauthorized access, unauthorized use, espionage, intrusion, damage, and destruction. Information security specialists research In order to achieve the necessary protection for information, it is important to identify the best ways and means to secure information from all the dangers that threaten information security, such as malware, which is the biggest enemy of computers, information systems, and networks, or espionage. These threats can lead to the corruption, loss, or destruction of information. Information security also represents the protection and security of all resources used, ensuring their safety and confidentiality. The absence, deficiency, or cessation of information security, and the failure to make optimal use of it, leads to it becoming a burden on the organization. Therefore, the company and its information must be protected from damages that may lead to performance failure and losses for the organization. For this reason, information safety is considered one of the essential and governing pillars in defensive individuals and institutions from the subsequent damages (Dawadi & Bin Hud, 2020, 13-14).

3. Information Security Elements:

Information security represents a way of life based on four elements that cannot be dealt with individually and independently, according to Awadallah (2018: 53). These elements are as follows:

- a. **Operations:** Operations are indispensable to any security system. They are essential, continuous in nature, and implemented systematically. They are also regularly reviewed based on accrued knowledge to remove errors and risks.
- b. **People:** (Employees, consultants, technicians, contractors) carry out all operations and services. Their presence is required in suitable statistics and with suitable specializations, skills, knowledge, and incentive.
- c. **Technology:** The technology market is characterized by a large number of producers, suppliers, vendors, and distributors. These entities may merge into larger partnerships or lose out and exit the market. This makes it difficult to evaluate technology based on its past state. D - Culture: It is related to interpreting the business environment and is related to the organization's ethics towards society, where the organization's management has a major role to play in preserving the organization's culture that is compatible with the culture of its society.

4-Components of Information Security:

Information security has three components, as follows:
<http://www.journal.cybrarians.org/index.php>

a. Confidentiality of Information:

The procedures and measures necessary to prevent unauthorized access to information that is classified as confidential or sensitive are what is meant by information security and confidentiality. Therefore, the degree of confidentiality and the type of information vary from place to place according to the policy followed in that place. Examples of information that must be kept confidential include: personal information of individuals, the financial budgets of companies before their public release, and military information and data related to the armed forces and military sites in the country.

b. Information Security:

The primary concern is maintaining the confidentiality of information. This security is ensured by protecting the information from falsification and alteration after its public release. For example, an organization might publish financial or other information pertaining to it. In such cases, the security of this information must be protected from alteration or falsification. For instance, ministries or universities might announce the names of accepted students. Protecting these lists involves ensuring they are secure against alteration and falsification, such as the deletion of names and the insertion of others, which could cause embarrassment and legal problems for the institutions. Similarly, regarding financial information, changing a sum of money from 100 to 1,000,000 is extremely important due to the significant financial losses it could result in.

c. Ensuring Access to Information:

We have established that all information processes and procedures are ultimately designed to achieve one common objective: to provide information and data to the right people at the right time, and that if confidentiality, integrity, and unaltered nature are not maintained, then there is no point in trying to prevent information from being accessed by unauthorized people. Here we see the third element or component of information security: the provision of secure and rapid access to information for those who have been authorized to access it, and in this regard, malicious actors use a variety of means to deny access to beneficiaries, including deleting information before it can be accessed, or even attacking and destroying information storage devices, or at least damaging them.

5-Accounting Information Security Requirements:

Protecting the security and integrity of accounting information is of paramount importance in government institutions. Therefore, all managers must implement procedures and methods that ensure this protection for accounting information.

There are several requirements for protecting the security of accounting information, which can be formulated as follows: (Aftouha, 2019: 374-375). a. Establish a general security policy for accounting information.

- a. Senior management in the economic unit must support the security of its information systems.
- b. Responsibility for information systems security must be assigned to specific individuals.
- c. Determine the necessary protection for operating systems and various applications.
- d. Define monitoring mechanisms for information systems and computer networks.
- e. Maintain secure backups of information systems.
- f. Encrypt information that has been saved, stored, and transmitted across various media.
- g. Ensure the continuity and readiness of specific information systems in crisis situations and when facing risks related to information systems.

Part Three: The Practical Aspect

First – The Study Population and Sample:

The study population consists of Al-Rabee Financial Services Company, and the study sample is comprised of a group of employees from Al-Rabee Financial Services Company.

The following table represents the strata of the statistical population, the number of questionnaires distributed, and the number of questionnaires returned and analyzable using SPSS software.

Table (1) shows the number of questionnaires distributed and returned.

The community is well-considered.	Distributed questionnaires	Returned questionnaires	Return rate
Company employees.	70	50	71%

Of the above percentage, 71% is acceptable for analyzing the sample data. After analyzing the questionnaires, a difference in the distribution of the sample members with respect to the educational qualification variable was found. The results are shown in Table (2):

Table (2) shows the educational qualification of the sample memberships.

Academic Qualification	Number	Percentage
PhD	13	%26
Master's	15	%30

Bachelor's	14	%28
Other	8	%16
Total	50	%100

After analyzing the forms, a difference was found in the distribution of the sample members for the scientific specialization variable, and the result was as shown in Table (3):

Table (3) shows the scientific specialization of the sample memberships

Academic Qualification	F	Percentage
Accounting	18	%36
Business Administration	14	%28
Economics	6	%12
Other	12	%24
Total	50	%100

Second: Reliability Test:

Cronbach's alpha constant was used to confirm the grade of correlation between the questionnaire queries in order to determine the reliability of the statistical analysis results. The closer the coefficient is to one, the stronger the correlation, with a minimum value of 0.60 considered the lowest value.

Table (4) Cronbach's Alpha Coefficient

Number of data	Cronbach's Alpha
5	0.824

From the preceding table, the removed worth of Cronbach's alpha coefficient is 0.824, and that value is close to one, which means there is validation of the constancy of the survey.

Thirdly - Frequencies and Percentages

Table (5) Frequencies and Fractions

No.	Vertebrae	mean	Standard deviation
1	The company has an integrated FIS system.	4.000	0.600
2	Protecting information security and its systems ensures the confidentiality of financial information.	4.180	0.582
3	EAIS provide reliable information.	3.960	0.604
4	EAIS provide users with up-to-date information.	4.320	0.568
5	EAIS lead to the accuracy and integrity of financial information.	3.180	0.682
6	The EAIS implemented in the company are characterized by their flexibility.	3.900	0.610
7	EAIS make information available to their users at any time.	3.600	0.640

8	Transactions conducted within the framework of EAIS are secure and protect privacy.	3.200	0.680
9	The information provided by the company's EAIS is easy to understand.	3.280	0.672
10	The quality of service provided by the EAIS reflects the quality of training provided to information users.	4.180	0.582

Fourth: Presentation and Analysis of the Questionnaire Results

The questionnaire consists of questions (1-10), and Table (6) shows the frequencies, percentages, mean, and standard deviation for these questions. The following results are evident from this table:

1. Item (1): The company has an integrated system for FIS.

The percentage of respondents who completely agreed was (46%), and the percentage who agreed was (54%). The mean for this item was (4.000), and the standard deviation was (0.600).

2. Item (2): Protecting information security and its systems ensures the confidentiality of financial information.

The research sample agreed (86%) with either full agreement or strong agreement on this item. The neutral percentage was (6%), and the percentages of disagreement and strong disagreement were (4%) each. The mean was (4.180), and the standard deviation was (0.582).

3. Item (3): EAIS provide reliable information.

The research sample agreed (80%) with either full agreement or agreement. The neutral percentage was (10%), while the fraction of disagreement was (4%), and the fraction of strong difference was (6%). The mean for this item was (3.960), and the standard deviation was (0.604).

4. Item (4): EAIS provide users with up-to-date information.

The research sample agreed (80%) with either full agreement or strong agreement. The neutral percentage was (10%), while the fraction of difference was (4%), and the fraction of strong disagreement was (6%). The research sample agreed (90%) between agreement and strong agreement, while 40% disagreed and 50% strongly disagreed. The mean for item (4.320) was 0.568, and the standard deviation was 0.568.

5. Item (5): EAIS lead to accuracy and integrity of financial information.

The research sample agreed (94%) between agreement and strong agreement, while 6% were neutral. The mean for item (3.180) was 0.682, and the standard deviation was 0.682.

6. Item (6): The EAIS implemented in the company are characterized by flexibility.

The percentage of those who strongly agreed or disagreed with this statement was 78%, while the percentage of those who were neutral was 4%, the percentage of those who disagreed was 10%, and the percentage of

those who strongly disagreed was 8%. The mean for this statement was 3.900, and the standard deviation was 0.610.

7. Item (7): EAIS provide information to their users at any time.

The percentage of those who strongly agreed or disagreed with this statement was 86%, while the percentage of those who were neutral was 6%, the percentage of those who disagreed was 2%, and the percentage of those who strongly disagreed was 6%. The mean for this statement was 3.600, and the standard deviation was 0.640.

8. Item (8): Transactions conducted within the framework of EAIS are secure and protect privacy.

The percentage of strong agreement and agreement among the research sample was 90%, while the percentage of neutrality was 4%, the fraction of difference was 2%, and the percentage of strong difference was 4%. The mean for the item was 3.200, and the standard deviation was 0.680.

9. Item (9): The information provided by the company's EAIS is characterized by its ease of understanding.

The research sample achieved a percentage of strong agreement and agreement of 88%, while the percentage of neutrality was 6%, the percentage of disagreement was 4%, and the percentage of strong disagreement was 2%. The mean for the item was 3.280, and the standard deviation was 0.672.

10. Item (10): The quality of service provided by EAIS reflects the quality of training provided to information users.

The percentage of those who agreed was 6%, while the percentage of those who disagreed was 4%, and the percentage of those who strongly disagreed was 2%. The research sample showed a 92% agreement or strong agreement, a 2% neutrality, a 4% disagreement, and a 2% strongly disagreement. The mean score for each item was 4.180, and the standard deviation was 0.582.

By observing the results presented in Table 5, which displays frequencies and percentages, we can see that item four of the questionnaire had the highest mean score (4.320) and a standard deviation of 0.568, while item five had the lowest mean score (3.180) and a standard deviation of 0.682. This designates a low dispersion of responses from the mean.

Fifth: Proving the Research Hypotheses

1-Null Hypothesis: EAIS have no impact on FIS.

Alternative Hypothesis: EAIS have an impact on FIS.

B- Null Hypothesis: There is no correlation between EAIS and FIS.

Alternative Hypothesis: There is a statistically significant correlation between EAIS and FIS.

The one-sample T-test results of the research hypothesis was confirmed with the calculated t-value of 2.3651, which exceeds the critical value of 1.96 at a 95% confidence level and a significance level of 0.05. The null hypothesis is rejected and the alternative hypothesis is accepted, which was proven by practical experience: There is a positive correlation between accounting information systems and increased FIS.

Conclusions

The research findings revealed a global interest in Electronic Information Security Systems (EAIS) due to their significant advantages in the field of financial information security. However, the company also lacked guidance and legal documentation regarding information security crimes in general. Furthermore, the company showed a weakness in its focus on employees who use EAIS systems.

The research results demonstrated the existence of threats to the security of EAIS systems, which could potentially harm financial data and negatively impact the company. This contributed to improving the company's EAIS readiness to meet financial information security requirements.

Recommendations:

Based on the research findings, a set of recommendations can be proposed that may benefit the companies concerned. Company management should pay greater attention to electronic accounting information systems to ensure the security and integrity of financial information. The company should also have a legal and guidance manual on information security crimes.

Furthermore, it is essential to employ personnel trained in electronic systems, including electronic accounting information systems, and to use strong encryption to protect financial information. This demonstrates that information security must be taken very seriously, using the latest methods, technologies, and software to prevent or stop breaches of the company's financial data, given its critical importance to the company's continuity and existence.

Integrated accounting information systems should also be used to meet the company's requirements for protecting financial data. Users of financial information and data must not disclose passwords or share data via social media.

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